Q. Implement Apriori Algorithm (brute force) assuming min_sup = 2.

Sol:

```
#include<bits/stdc++.h>
using namespace std;

void getItemset(vector<string> items,int i,vector<set<int> > &cur,set<int>
pres){
if(i==items.size()){
cur.push_back(pres);
}
else{
getItemset(items,i+1,cur,pres);
pres.insert(i);
getItemset(items,i+1,cur,pres);
}
}

bool find(vector<string> v,string d){
for(int i=0;i<v.size();i++){
if(v[i].compare(d)==0){
return true;
}
}
return false;
}

int main()
{
freopen("input.txt","r",stdin);
freopen("output.txt","w",stdout);
string data;
map<string,int> freq;
vector<string> items;
string pres;
map<string,vector<string> > transac;
//string str="";
while(cin>>data){
if(data.front()>='a' && data.front()<='z'){
freq[data]+=1;
transac[pres].push_back(data);
}
if(data.front()=='T'){
pres=data;
}
}
for(auto it=freq.begin();it!=freq.end();it++){
items.push_back(it->first);
}
vector<set<int> > itemsets;
set<int> s;
```

```
getItemset(items,0,itemsets,s);
int min_sup=2;
for(int i=0;i<itemsets.size();i++){
map<string,int> mp;
int cp=0;
if(itemsets[i].size()==0){
continue;
}
for(auto it=itemsets[i].begin();it!=itemsets[i].end();it++){
mp[items[*it]]=1;
}
for(auto tit=transac.begin();tit!=transac.end();tit++){
int f=0;
for(auto mpit=mp.begin();mpit!=mp.end();mpit++){
if(!find(tit->second,mpit->first)){
f=1;
break;
}
}
if(f==0){
cp++;
}
}
if(cp>=min_sup){
for(auto mpit=mp.begin();mpit!=mp.end();mpit++){
cout<<mpit->first<<" ";
}
cout<<" :- "<<cp<<"\n";
}
}
return 0;
}
```

Sample Input:
T1 a b c e
T2 b d f
T3 a c d f
T4 d f
T5 c d e
T6 a c d

Sample Output:
f :- 3
e :- 2
d :- 5
d f :- 3
c :- 4
c e :- 2
c d :- 3
b :- 2

a :- 3
a d :- 2
a c :- 3
a c d :- 2

Please find below the Drive link to the Assignment:

https://drive.google.com/drive/folders/1klKkYBYpf7VNAaFjFAEUcvrQefQYzBWm?usp=sharing